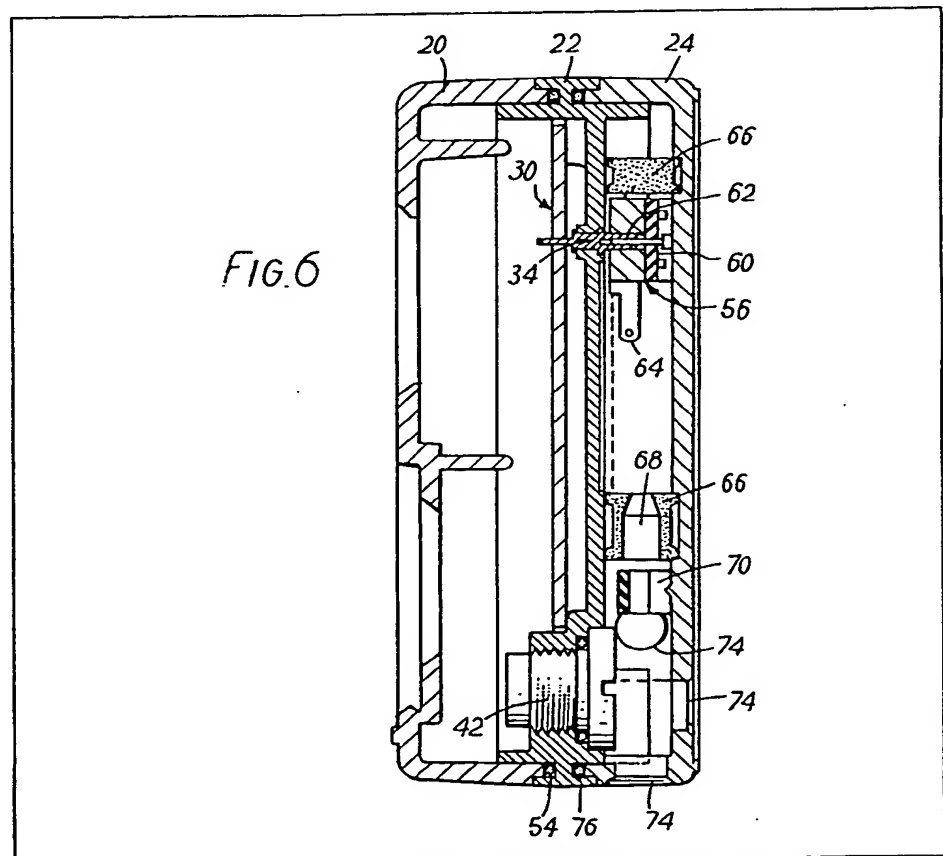


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(54) Display and/or control unit

(57) A display and/or control unit comprises a sealed display and/or control assembly having a two-part housing (20, 22) with a seal (54) there-between, a separate back plate (24) to which the assembly can be secured and carrying a connector block (56) having terminals (64) for receiving cables. Pins (62) on the connector block are arranged to make contact with connectors (34) on the assembly as the assembly is offered up to the back plate. A silicone rubber seal (66) surrounds the connector block and contacts forming a seal between the assembly and the back plate but with through apertures (68) to allow for cable entry.



The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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FIG. 1

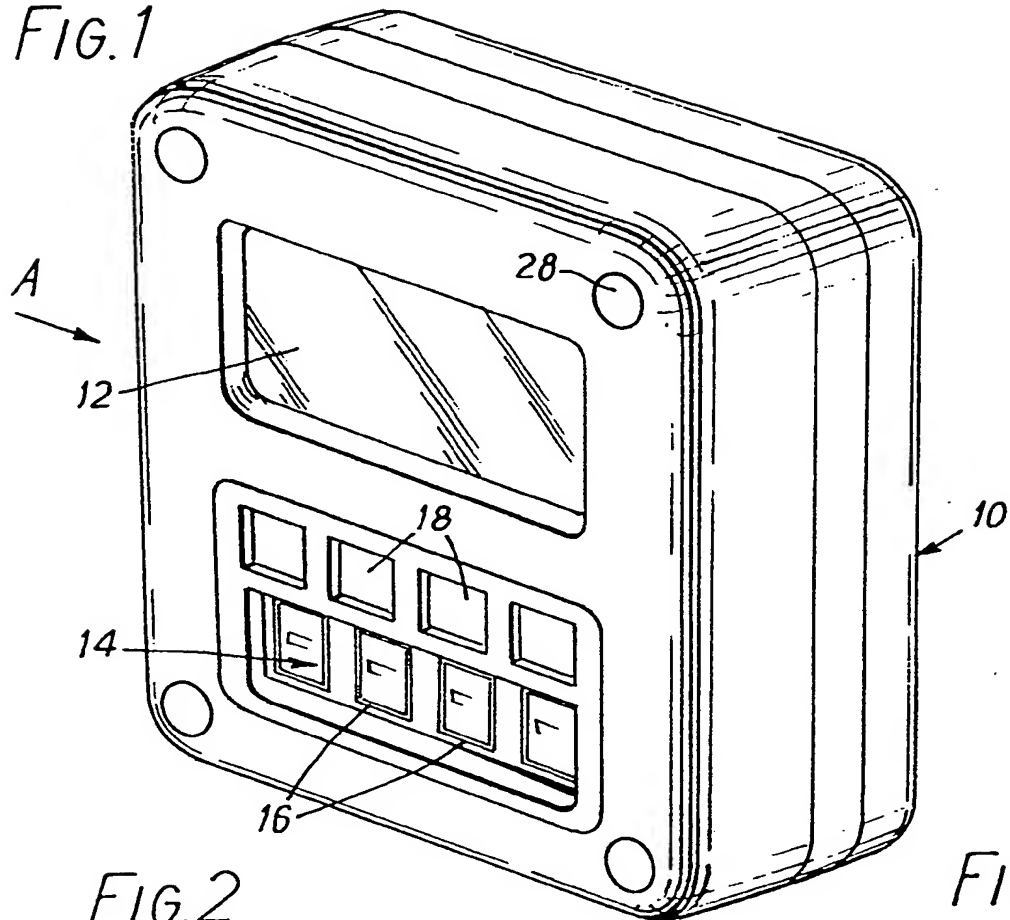


FIG. 2

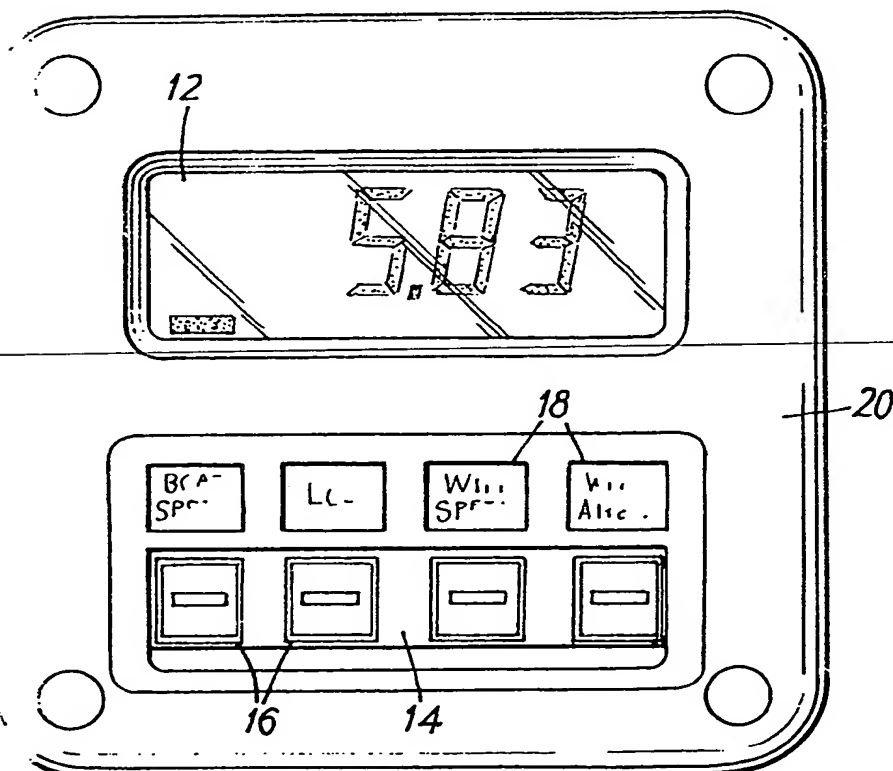


FIG. 3

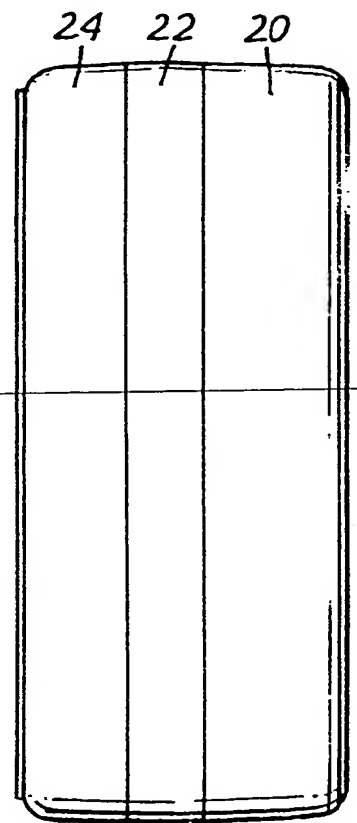


FIG. 4

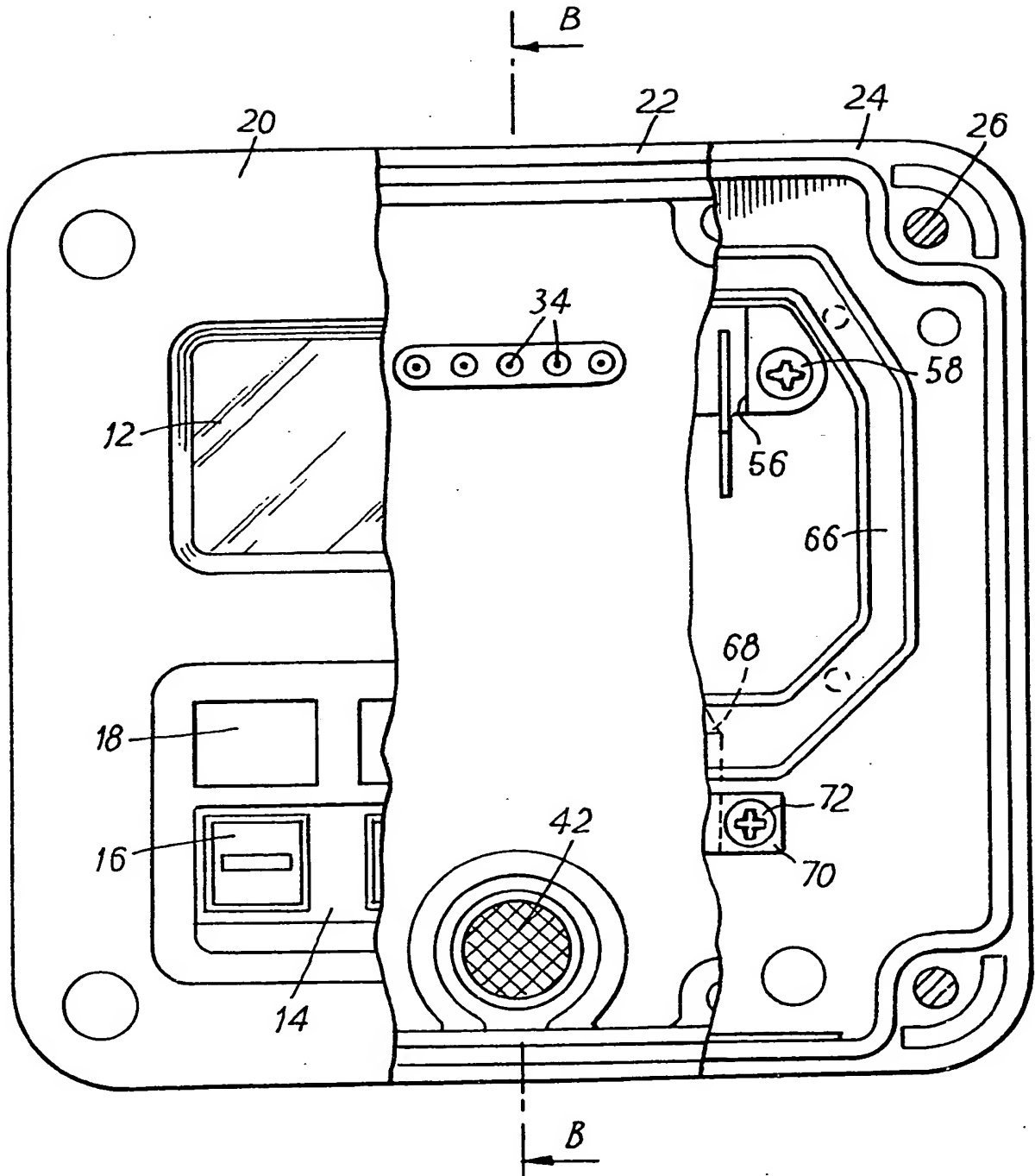
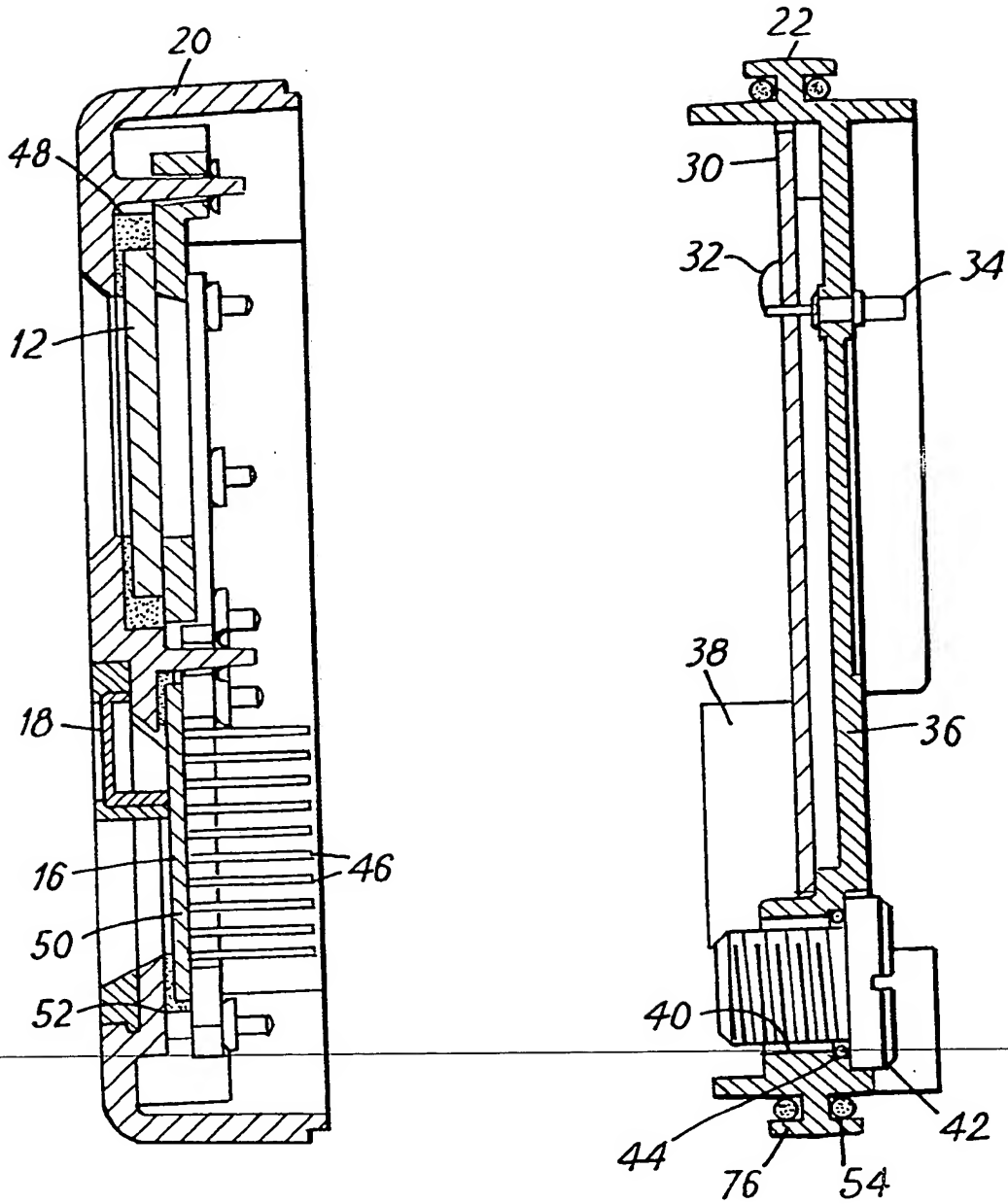


FIG. 5



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FIG. 6

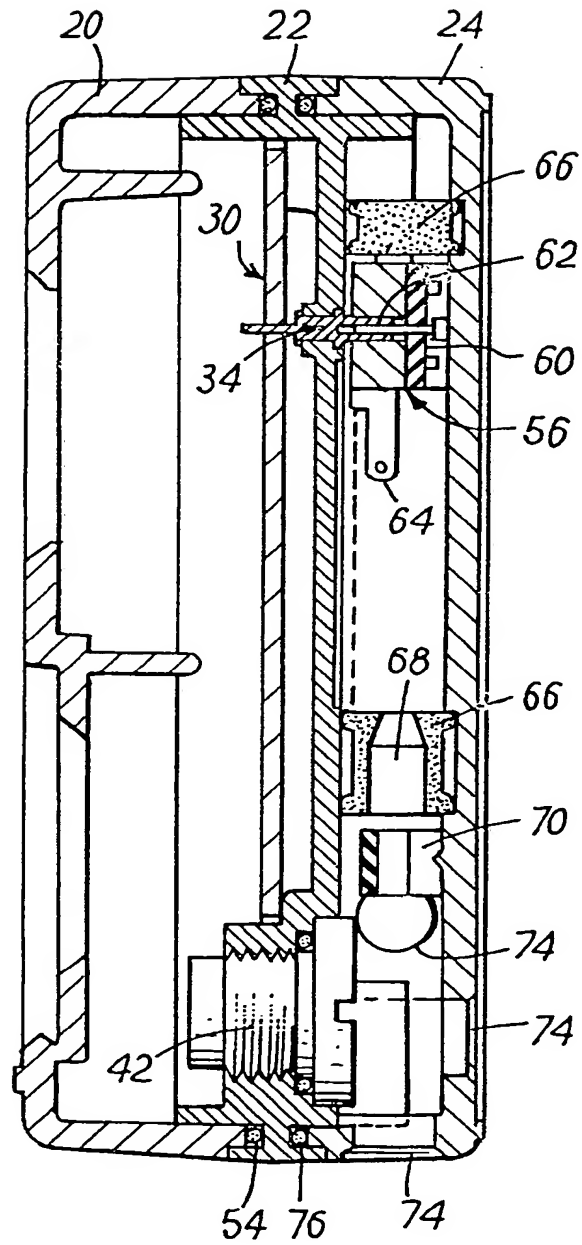
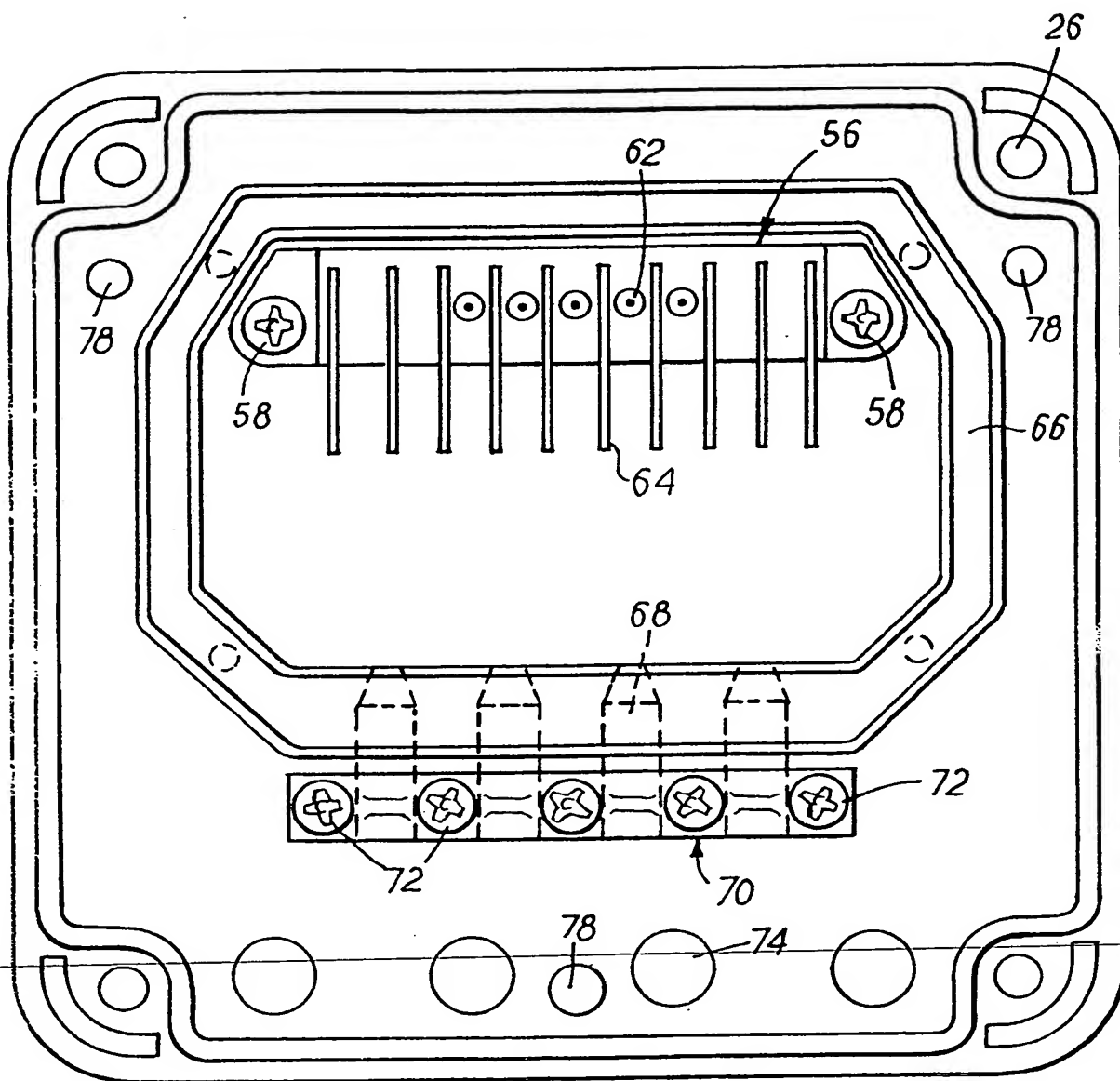


FIG. 7



SPECIFICATION

Display and/or control unit

5 This invention relates to a display and/or control unit suitable for marine use, particularly on yachts.

There is a requirement for a unit which can be mounted in the cockpit of a yacht and which thus has to function in the presence of a considerable amount of moisture. Nevertheless the unit should be relatively simple to install.

The present invention is defined in the appended claims, to which reference should not be made.

The invention will be described by way of example, with reference to the drawings, in which:

Figure 1 is a perspective view of a display/control unit embodying the invention;

Figure 2 is a front elevational view of the unit;

Figure 3 is a side view of the unit taken on the arrow A in *Figure 1*;

Figure 4 is a partially broken away front view showing the three main components of the unit;

Figure 5 is a sectional view through the front cover and the intermediate section of the unit, taken on the line B-B in *Figure 4*;

Figure 6 is a sectional view through the unit also taken on the line B-B in *Figure 4* showing the connections between the intermediate section and the back plate; and

Figure 7 is a front elevational view of the back plate alone.

The unit 10 illustrated in the drawings provides for the display of numeric information on a liquid crystal display (LCD) 12 and for the selection by means of a touchpad 14 of the information displayed on the display. The touchpad 14 has four sensitive areas 16 and details of the corresponding functions are indicated in areas 18 immediately above the sensitive areas 16, for example with the use of interchangeable labels. The areas 18 may be illuminated.

The unit is formed of three main external components, a front cover 20, an intermediate section 22, and a back plate 24. The front cover carries the display 12 and touchpad 14. The front cover 20 and the intermediate section 22 when put together form a sealed assembly which can be attached to the back plate by means of bolts (not shown) at the four corners of the unit which are received in threaded bores 26 (*Figures 4 and 7*) formed in the back plate 24. The heads of the bolts are then covered by sealing plugs 28.

Referring now to *Figure 5*, the internal details of the assembly comprising the front cover 20 and intermediate section 22 are seen. The assembly includes a printed circuit board (PCB) 30 mounted on the intermediate section 22 and to which are soldered at 32 connector members 32 which penetrate the wall section 36 of the intermediate section 22. The lower end of the board 30 as seen in *Figure 5* carries a connector and switching unit 38. Below this a bore 40 receives a threaded dessicator 42 which is sealed in the bore by an 'O' ring 44 (see *Figures 4, 5 and 6*).

The front cover 20 houses the LCD 12 and touchpad 14 as described above. These are con-

nected by pins 46 on the lower portion of the front cover 20 which are received in the connector unit 38. In this way appropriate connection is maintained from the connectors 34 through the PCB 30 and unit 38 to the touchpad 14 and display 12. The unit 38 may be provided with switches which can be preset as desired to control the type of information displayed on the LCD 12.

The liquid crystal display 12 is sealed against the front cover 20 by a sealing member 48, and the pins 46 are mounted on a board 50 constituting the touchpad 14 and which is also sealed against the front cover 20 by a sealing member 52. The front cover 20 and the intermediate section 22 are sealed around their periphery by an 'O' ring seal 54, and are secured together by eight bolts (not shown) which pass from the rear through the intermediate section 22 into threaded bores in the front cover 20. These bolts are each provided with a sealing ring to ensure the water-tightness of the assembly.

Referring now particularly to *Figures 6 and 7*, the connection of the assembly of *Figure 5* to the back plate is seen, together with the arrangements for cable entry and termination. The internal details of the assembly 20, 22 are not shown in *Figure 6*.

The back plate 24 carries a connector block 56 which is secured by barbed washers pushed onto posts 58 (*Figures 4 and 7*). The connector block 56 includes a printed circuit board 60 interconnecting pins 62 with associated terminal members 64. The pins 62 are positioned to make contact with the connectors 34 on the intermediate section 22 when the latter is placed on the back plate.

A silicone rubber cable seal 66 extends around the connector block 56. The seal 66 has through apertures 68 in its lowermost section through which cables can pass for connection to the terminals 64. The cables are clamped by a cable clamp 70 having bolts 72. The back plate 24 has pluggable apertures 74 through which the cables can pass, these being in the back, sides and bottom of the back plate to allow for selective cable entry.

An 'O' ring seal 76 is positioned between the intermediate section 22 and the back plate 24.

The back plate 24 has three securing holes 78 by means of which it can be surface mounted.

In use of the unit, the back plate 24 is first secured in position and the cables passed through the apertures 68 in the gasket 66 and connected up to the terminals 64. This is a relatively easy task as the terminals are fully open at this stage. The switches on the unit 38, if present, are set and the assembly of the front cover 20 and the intermediate section 22 is then offered up to the back plate. The pins 62 and connectors 34 are engaged, the securing bolts tightened, and finally the plugs 28 are fixed in position.

It will be seen that the unit is particularly adapted for marine use. The assembly 20, 22 is water-tight thus safeguarding the principal elements of the display. The dessicator 42 keeps the atmosphere dry. The connector block 56 is reasonably well sealed by the seal 66 so as to provide a considerable degree of water-resistance. Nevertheless the unit is easy to install, and to secure. The dessicator can be changed

from the rear of the intermediate section 22. Because the unit is relatively shallow, it is particularly suited for surface rather than recessed mounting.

The unit as shown provides both a display and a control facility. In appropriate cases it may however include only one or other of these, the other section being filled simply by a blanking plate such as a name plate.

10 CLAIMS

1. A display and/or control unit comprising a sealed display and/or control assembly, a separate back plate to which the assembly can be secured and carrying cable terminations and electrical contacts on the assembly and the back plate which make contact when the unit is assembled.
2. A unit according to claim 1, including a seal member around the cable terminations and contacts forming a seal between the assembly and the back plate but with provision for cable entry.
3. A display and/or control unit substantially as described with reference to the drawings.

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